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Post-traumatic stress disorder linked to death, atherosclerosis in veterans

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Post-traumatic stress disorder (PTSD) more than doubles a veteran's risk of death from any cause and is an independent risk factor for cardiovascular disease, according to research presented at the American Heart Association's Scientific Sessions 2010.

PTSD is more than a psychological disorder, and the study suggests that physicians should provide early and aggressive evaluation and treatment of cardiovascular risk factors in patients with PTSD, said Naser Ahmadi, M.D., M.S., and Ramin Ebrahimi, M.D., co-principal investigators of the study. PTSD is a cluster of symptoms that can include emotional numbing, avoidance of certain situations, hyperarousal, sleep disruptions and impaired concentration.

"This study for the first time appears to point to the mechanism for the cardiovascular part of that excess mortality risk: accelerated atherosclerosis," said Ahmadi, a research scientist at the Greater Los Angeles Veterans Administration (VA) Medical Center. "Our trial is the first to make a direct association between PTSD and atherosclerotic coronary disease as measured by coronary artery calcification (CAC), a standard test that is commonly used in studies such as ours because it can be measured non-invasively."

Researchers studied the electronic medical records of 286,194 veterans (average age 63, 85.1 percent male) treated at VA medical centers in southern California and Nevada. The veterans participated in conflicts dating back to the Korean War.

During an average follow-up of nearly 10 years and after adjusting for age, gender, and common cardiovascular risk factors, the researchers found that veterans diagnosed with PTSD had 2.41 times the rate of death from all causes compared to non-PTSD veterans — making PTSD an independent predictor of death from all causes.

PTSD patients made up 10.6 percent (30,460) of the entire group of veterans, but 28.9 percent of veterans who died had PTSD, said Ahmadi, who is also a member of the research faculty at the Greater Los Angeles VA Health Care System.

In a 637-veteran sub-study that used a non-invasive technique to measure the amount of coronary artery calcium, researchers found that 76.1 percent of veterans with PTSD showed at least some CAC, compared to 59 percent of non-PTSD veterans. As a group, the PTSD veterans had more severe disease of their arteries with an average CAC score of 448 compared to 332 in non-PTSD veterans.

The researchers sorted the subgroup according to their calcium buildup. After controlling for known cardiovascular risk factors and mental status, they found that at every level of calcium buildup, the PTSD veterans had a higher risk of all-cause mortality. Among veterans with calcium buildup, those with PTSD had a 48 percent greater risk of death from any cause and a 41 percent greater risk of death due to cardiovascular disease compared to non-PTSD veterans.

"The current PTSD treatment protocol is to provide relief of symptoms alone," Ahmadi said. "PTSD is a very debilitating disorder. It makes the patient feel hopeless. These patients constantly struggle with many different (psychological) problems."

The study's findings are important because they show that PTSD predicts death independently of known cardiovascular risk factors, Ahmadi said.

"We also believe we have found a mechanism by which PTSD could increase the risk of cardiovascular events via atherosclerosis. If we focus on early detection and management of cardiovascular risk factors in veterans with PTSD, we might be able to delay the onset of cardiovascular disease."

Provided by American Heart Association